What is claimed is:

1. A communication system for increasing a capacity by implementing one-frequency reuse with a non-spread spectrum system, wherein:

a transmitting station side transmits a transmitting signal obtained by a process of segmenting transmission information into a plurality of frames, of encoding each frame, of power amplifying each encoded signal with a different amplitude, and of interleaving all signals with each amplified signal collected into one; and

a receiving station side reproduces said transmitting signal into original segmental frames by a process of de-interleaving said transmitting signal, of sequentially decoding codes of the signal in descending order of Signal-to-Interference and Noise power Ratio, and of re-encoding the decoded signal to successively cancel the re-encoded signal from said transmitting signal.

2. The communication system according to claim 1, wherein a different interleaving pattern is used for each user.

3. The communication system according to claim 1, wherein a different interleaving pattern is used for each cell.

4. The communication system according to claim 1, wherein the transmitting station side is configured so that a rate of amplitude amplification for each frame is changed according to a decoding capability in the

receiving station side.

5. The communication system according to claim 1, wherein the transmitting station side is configured so that the number of codes to be multiplexed is determined according to a decoding capability or a process capability realizable in the receiving station side.

6. The communication system according to claim 1, wherein the transmitting station side is configured so that propagation path conditions such as traffic conditions are monitored at certain intervals to update an amplitude value of each code with reference to the number of considerable interference signals, the number of code words for one frame and noise power according to said propagation path conditions.

7. The communication system according to claim 6, wherein the transmitting station side is configured so that calculation of the amplitude value of each code is performed by taking advantage of a residual interference power composed of a power sum of undesired waves having been not considered to be the considerable undesired waves.

8. The communication system according to claim 7, wherein the transmitting station side is configured so that the amplitude of a low-level code is increased when an average residual interference power is of high level.

9. The communication system according to claim 8,

wherein the transmitting station side is configured so that adjustment of the number of considerable interference signals, the number of codes for one frame and an amplitude margin is adapted to maintain an average transmission power when an increase of the amplitude of the low-level code is attained.

10. A transmitting apparatus for transmitting information using a non-spread spectrum system, comprising:

frame segmenting means of segmenting transmission information into a plurality of frames;

encoding means of encoding each frame;

power amplification means of power amplifying each encoded signal with different amplitude;

interleaving means of interleaving all signals with each amplified signal collected into one; and

transmitting means of transmitting a transmitting signal obtained by the interleaving.

11. The transmitting apparatus according to claim 10, wherein said power amplification means is to change a rate of amplitude amplification for each frame according to a decoding capability in a receiving station side.

12. The transmitting apparatus according to claim 10, wherein said frame segmenting means is to determine the number of codes to be multiplexed according to a decoding capability or a process capability realizable in a receiving station side.

13. The transmitting apparatus according to claim 10, further comprising propagation path condition monitoring means of monitoring propagation path conditions such as traffic conditions at certain intervals, wherein said power amplification means is to update an amplitude value of each code with reference to the number of considerable interference signals, the number of code words for one frame and noise power according to said propagation path conditions.

14. The transmitting apparatus according to claim 13, wherein said power amplification means performs calculation of the amplitude value of each code by taking advantage of a residual interference power composed of a power sum of undesired waves having been not considered to be the considerable undesired waves.

15. The transmitting apparatus according to claim 14, wherein said power amplification means is to increase the amplitude of a low-level code when an average residual interference power is of high level.

16. The transmitting apparatus according to claim 15, wherein said power amplification means is to adapt adjustment of the number of considerable interference signals, the number of codes for one frame and an amplitude margin to maintain an average transmission power when an increase in the amplitude of the low-level code is attained.

17. A transmitting method for transmitting information

using a non-spread spectrum system, comprising:

a frame segmenting step of segmenting transmission information into a plurality of frames;

an encoding step of encoding each frame;

a power amplification step of power amplifying each encoded signal with different amplitude;

an interleaving step of interleaving all signals with each amplified signal collected into one; and

a transmission step of transmitting a transmitting signal obtained by the interleaving.

18. The transmitting method according to claim 17, wherein said power amplification step is to change a rate of amplitude amplification for each frame according to a decoding capability in a receiving station side.

19. The transmitting method according to claim 17, wherein said frame segmenting means is to determine the number of codes to be multiplexed according to a decoding capability or a process capability realizable in a receiving station side.

20. The transmitting method according to claim 17, further comprising a propagation path condition monitoring step of monitoring propagation path conditions such as traffic conditions at certain intervals, wherein said power amplification step is to update an amplitude value of each code with reference to the number of considerable interference signals, the number of code words for one frame and the noise power according to said propagation path conditions.

21. The transmitting method according to claim 20, wherein said power amplification step is to perform calculation of the amplitude value of each code by taking advantage of a residual interference power composed of a power sum of undesired waves having been not considered to be the considerable undesired waves.

22. The transmitting method according to claim 21, wherein said power amplification step is to increase the amplitude of a low-level code when an average residual interference power is of high level.

23. The transmitting method according to claim 22, wherein said power amplification step is to adapt adjustment of the number of considerable interference signals, the number of codes for one frame and an amplitude margin to maintain an average transmission power when an increase in the amplitude of the low-level code is attained.

24. A receiving apparatus for receiving a transmitting signal obtained by a process of encoding each frame resulting from segmentation of transmission information, of power amplifying each encoded signal with a different amplitude, and of interleaving all signals with each amplitude signal collected into one, comprising:

de-interleaving means of de-interleaving said transmitting signal;

decoding means of successively decoding codes of the signal in descending order of Signal-to-Interference and

Noise power Ratio; and

signal canceling means of re-encoding the decoded signal to successively cancel the re-encoded signal from said transmitting signal.

25. A receiving method for receiving a transmitting signal obtained by a process of encoding each frame resulting from segmentation of transmission information, of power amplifying each encoded signal with a different amplitude, and of interleaving all signals with each amplitude signal collected into one, comprising:

a de-interleaving step of de-interleaving said transmitting signal;

a decoding step of successively decoding codes of the signal in order of Signal to Interference and Noise power Ratio; and

a signal canceling step of re-encoding the decoded signal to successively cancel of the re-encoded signal from said transmitting signal.

26. An unbalance code mixing method for carrying out an unbalance code mixing of information transmitted using a non-spread spectrum system, comprising:

a frame segmenting step of segmenting transmission information into a plurality of frames;

an encoding step of encoding each frame;

a power amplification step of power amplifying each encoded signal with a different amplitude; and

an interleaving step of interleaving all signals with each amplified signal collected into one.

27. The unbalance code mixing method according to claim 26, wherein said power amplification step is to change a rate of amplitude amplification for each frame according to a decoding capability in a receiving station side.

28. The unbalance code mixing method according to claim 26, wherein said frame segmenting step is to determine the number of codes to be multiplexed according to a decoding capability or a process capability realizable in a receiving station side.

29. The unbalance code mixing method according to claim 26, wherein said power amplification step is to update an amplitude value of each code with reference to the number of considerable interference signals, the number of code words for one frame and noise power according to said propagation path conditions.

30. The unbalance code mixing method according to claim 29, wherein said power amplification step is to perform calculation of the amplitude value of each code by taking advantage of a residual interference power composed of a power sum of undesired waves having been not considered to be the considerable undesired waves.

31. The unbalance code mixing method according to claim 30, wherein said power amplification step is to increase the amplitude of a low-level code when an average residual interference power is of high level.

32. The unbalance code mixing method according to claim

31, wherein said power amplification step is to adapt adjustment of the number of considerable interference signals, the number of code words for one frame and an amplitude margin to maintain an average transmission power, when an increase in the amplitude of the code of the low-level is attained.

33. A decoding method for decoding a transmitting signal obtained by a process of encoding each frame resulting from segmentation of transmission information, of power amplifying each encoded signal with a different amplitude, and of interleaving all signals with each amplitude signal collected into one, comprising:

a de-interleaving step of de-interleaving said transmitting signal;

a decoding step of decoding successively codes of the signal in descending order of Signal-to-Interference and Noise power Ratio; and

a canceling step of re-encoding the decoded signal to successively cancel the re-encoded signal from said transmitting signal.